

January 8 to January 14, 2012 (Week 02)

Overall Influenza Summary

- Influenza activity is increasing in more regions across the country; however, activity remains low in certain areas (i.e. Atlantic region, the Territories, and northern regions of QC & ON)
- Seven regions reported localized influenza activity and 16 regions reported sporadic influenza activity
- Eight outbreaks of influenza were reported this week (3 in hospitals and 5 in LTCFs)
- In week 02, 134 laboratory detections of influenza were reported (73 A/H3, 9 A(H1N1)pdm09, 14 A unsubtype and 38 B)
- Eighteen influenza-associated hospitalizations were reported this week (3 paediatric and 15 adult)
- The national ILI consultation rate declined this week compared to previous weeks but remains within expected levels for this time of year.

Influenza Activity (geographic spread) and Outbreaks

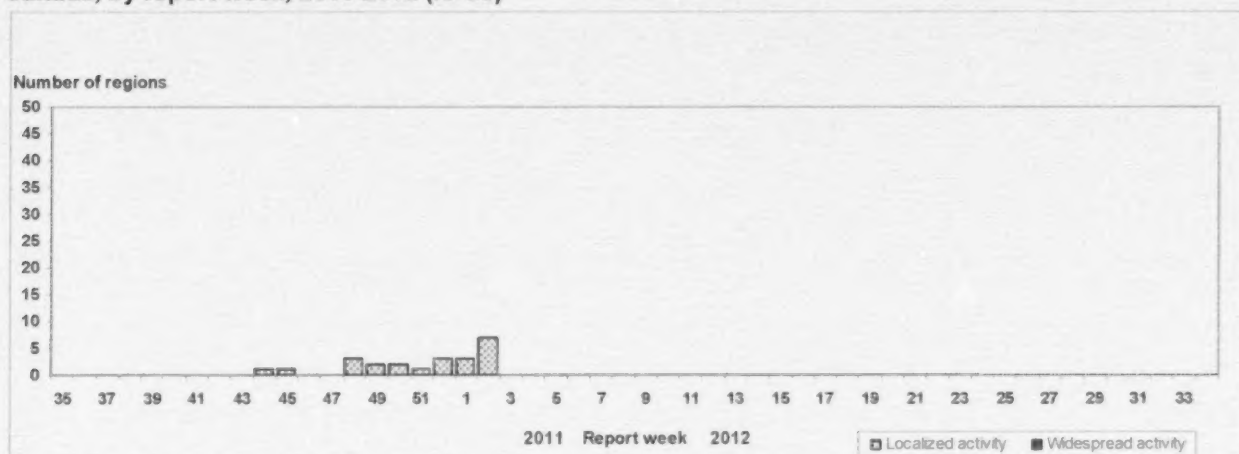
In week 02, seven surveillance regions (within BC, AB, SK, MB & ON) reported localized activity and 16 regions (within BC, AB, SK, ON & QC) reported sporadic influenza activity (see Figure 1). Eight outbreaks of influenza were reported this week: 5 in a long-term care facilities (in AB, SK, MB & ON) and 3 in hospitals (in BC) (Figure 3).

Figure 1. Map of overall Influenza activity level by province and territory, Canada, Week 02



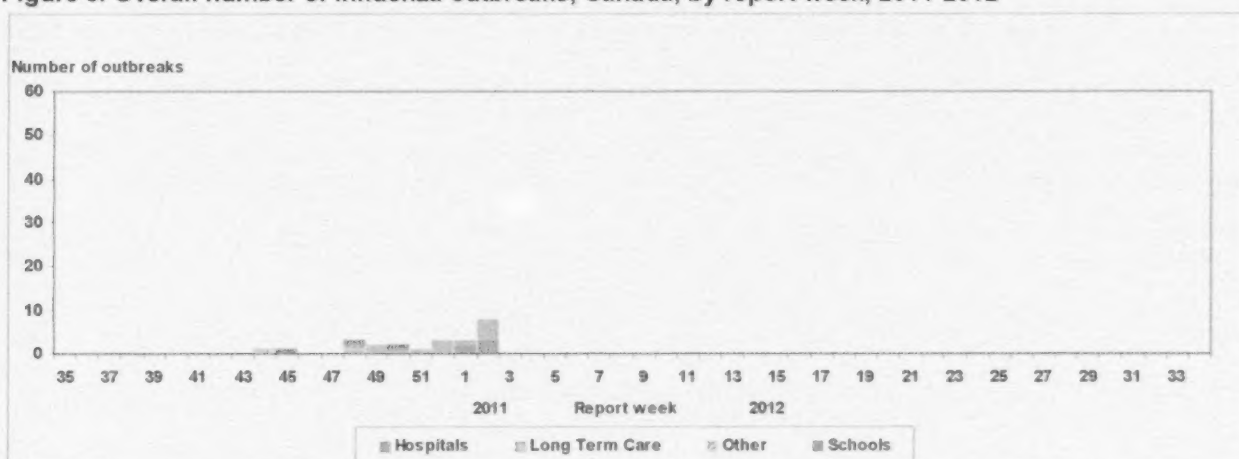
Note: Influenza activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates (see graphs and tables) and reported outbreaks. Please refer to detailed definitions on the last page. For areas where no data is reported, late reports from these provinces and territories will appear on the FluWatch website.

Figure 2. Number of influenza surveillance regions† reporting widespread or localized influenza activity, Canada, by report week, 2011-2012 (N=56)



† sub-regions within the province or territory as defined by the provincial/territorial epidemiologist. Graph may change as late returns come in.

Figure 3. Overall number of influenza outbreaks, Canada, by report week, 2011-2012



Influenza and Other Respiratory Virus Detections

In week 02, the proportion of positive influenza tests increased slightly to 3.4% (134/3,894) (Figure 4 & 5). Although the majority of influenza virus detections since the start of the season were for influenza A viruses, the number of influenza B virus detections have been increasing over recent weeks.

The proportion of influenza virus detections by type/subtype this season to date is as follows: 79.4% influenza A (74% - A(H3); 8% - A(H1N1)pdm09; 18% - untyped) and 20.6% influenza B (Table 1).

Detailed information on age and type/subtype were received on 525 cases this season to date (Table 2). The proportions of cases by age group are as follows: 21.1% were < 5 years; 10.3% were between 5-19 years; 25.9% were between 20-44 years; 13.0% were between 45-64 years of age; and 29.7% were ≥ 65 years.

In week 02, the proportion of tests positive for RSV was similar to the previous week (17.6%) and remains the most prevalent among the other respiratory viruses being detected. The highest percent positives for RSV were reported in QC and ON. The proportion of positive tests for the other respiratory viruses remained similar to previous weeks (rhinovirus-5.6%; parainfluenza-3.1%; adenovirus-3.6%; hMPV-6.0%; coronavirus-5.2%) (Figure 5). For more details, see the weekly [Respiratory Virus Detections in Canada report](#).

Table 1. Weekly & Cumulative numbers of positive influenza specimens by Provincial Laboratories, Canada, 2011-2012

Reporting provinces	January 8 to January 14, 2012						Cumulative (August 28, 2011 to January 14, 2012)					
	Influenza A					B	Influenza A					B
	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total
BC	39	0	38	1	0	4	179	0	178	1	0	11
AB	20	0	19	0	1	0	91	0	86	1	4	12
SK	11	0	10	0	1	1	53	0	47	0	6	1
MB	1	0	0	0	1	0	2	0	0	0	2	0
ON	16	0	6	7	3	13	70	0	27	31	12	44
QC	9	0	0	1	8	4	65	0	3	3	59	34
NB	0	0	0	0	0	0	0	0	0	0	0	1
NS	0	0	0	0	0	0	0	0	0	0	0	0
PE	0	0	0	0	0	0	0	0	0	0	0	0
NL	0	0	0	0	0	16	0	0	0	0	0	16
Canada	96	0	73	9	14	38	460	0	341	36	83	119

*Unsubtyped: The specimen was typed as influenza A, but no test for subtyping was performed. Specimens from NT, YT, and NU are sent to reference laboratories in other provinces. Note: Weekly data is based on week of positive lab detection. Cumulative data includes updates to previous weeks; due to reporting delays, the sum of weekly report totals do not add up to cumulative totals.

Table 2. Weekly & Cumulative numbers of positive influenza specimens by age groups reported through case-based laboratory reporting, Canada, 2011-2012*

Age groups	Weekly (Jan. 8 to Jan. 14, 2012)					Cumulative (Aug. 28, 2011 to Jan. 14, 2012)				
	Influenza A				B	Influenza A				B
	A Total	Pandemic H1N1	A/H3N2	A unsubtype	Total	A Total	Pandemic H1N1	A/H3N2	A unsubtype	Total
<5	8	3	3	2	3	81	16	49	16	30
5-19	7	0	7	0	0	45	2	40	3	9
20-44	8	0	6	2	1	117	6	90	21	19
45-64	5	1	3	1	0	59	2	50	7	9
65+	24	0	21	3	4	140	4	116	20	16
Unknown	0	0	0	0	0	0	0	0	0	0
Total	52	4	40	8	8	442	30	345	67	83

*Please note that this table reflects the number of specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported. Delays in the reporting of data may cause data to change retrospectively.

Figure 4. Influenza tests reported and percentage of tests positive, Canada, by report week, 2011-2012

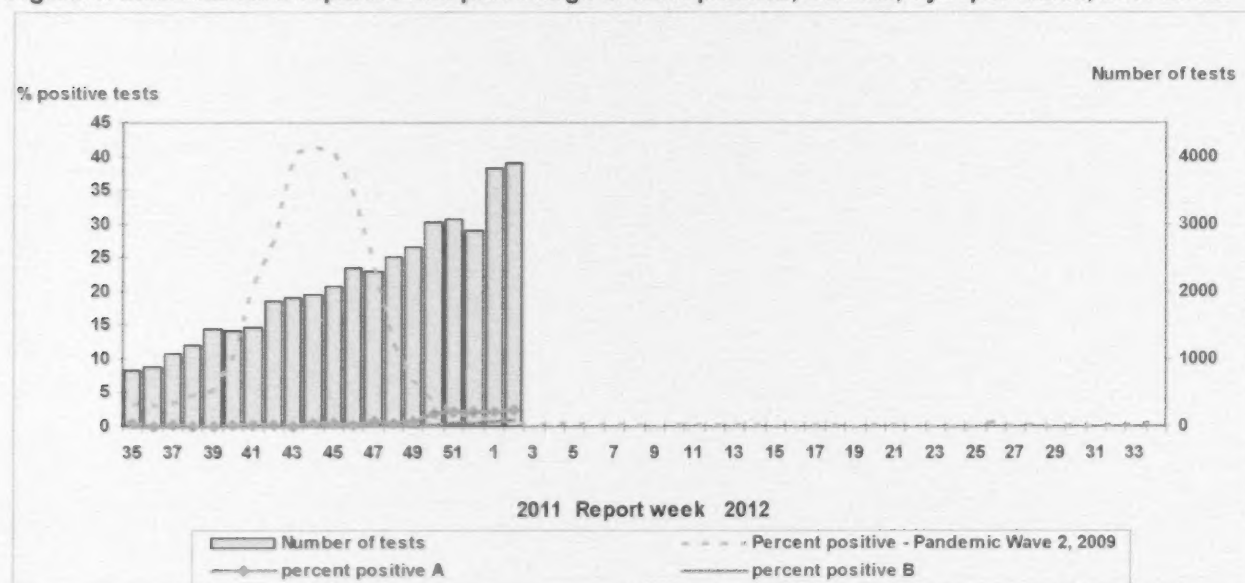
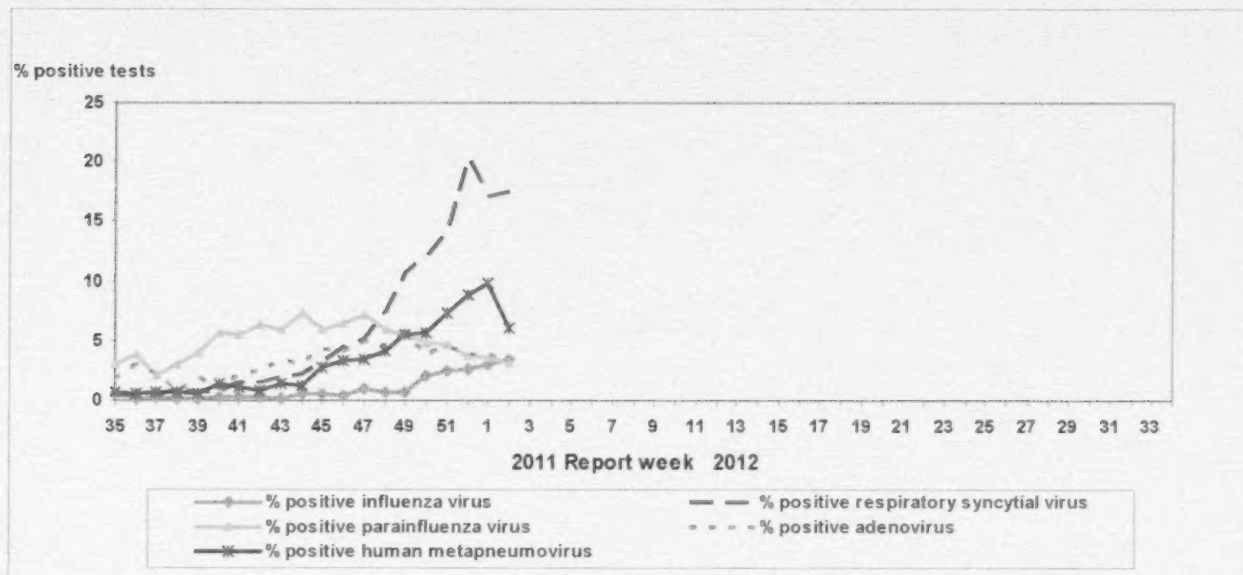


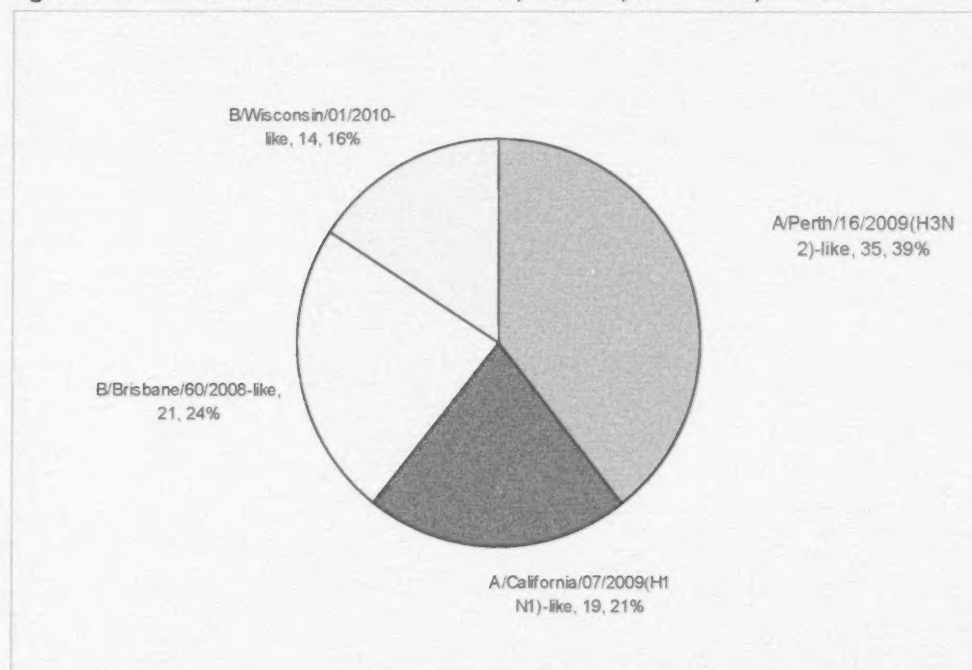
Figure 5. Percent positive influenza tests, compared to other respiratory viruses, Canada, by reporting week, 2011-2012



Influenza Strain Characterizations

Since the start of the season, the National Microbiology Laboratory (NML) has antigenically characterized 89 influenza viruses (35 A/H3N2, 19 A/H1N1 and 35 B). All 35 A/H3N2 viruses (from BC, AB, SK & ON) are antigenically related to A/Perth/16/2009. All 19 A/H1N1 viruses (from QC & ON) are antigenically related to A/California/07/2009. Twenty-one of the influenza B viruses characterized (from BC, AB, ON, QC & NL) are antigenically related to the vaccine strain B/Brisbane/60/2008 (Victoria lineage). The other 14 influenza B viruses (from BC, AB, ON, QC & NB) are antigenically related to the reference virus B/Wisconsin/01/2010-like, which belongs to the Yamagata lineage. (Figure 6)

Figure 6. Influenza strain characterizations, Canada, 2011-2012, N = 89



Note: The recommended components for the 2011-2012 Northern Hemisphere influenza vaccine include: A/Perth/16/2009 (H3N2), A/California/7/2009 (H1N1) and B/Brisbane/60/2008.

Antiviral Resistance

Since the beginning of the season, NML has tested 79 influenza viruses (34 A/H3N2, 16 A/H1N1 and 29 B) for resistance to oseltamivir (by phenotypic assay and/or sequencing) and for resistance to zanamivir (by phenotypic assay) and it was found that all 79 viruses were susceptible to oseltamivir and zanamivir. A total of 54 influenza A viruses (45 H3N2 and 9 H1N1) were tested for amantadine resistance and all 54 were found to be resistant. (Table 3)

Table 3. Antiviral resistance by influenza virus type and subtype, Canada, 2011-2012

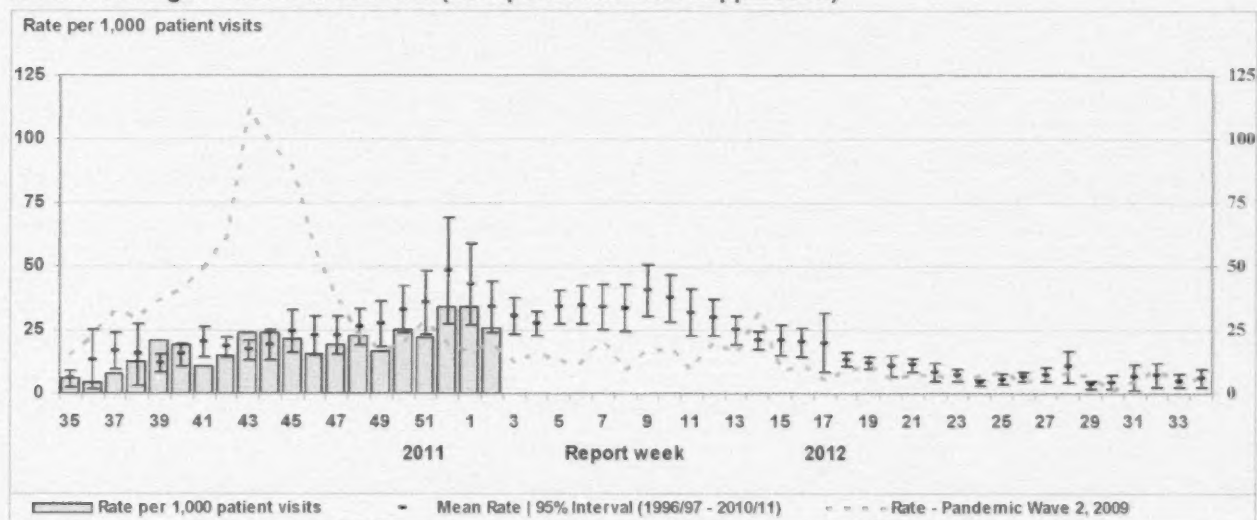
Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	34	0	34	0	45	45 (100%)
A (H1N1)	16	0	16	0	9	9 (100%)
B	29	0	29	0	NA*	NA*
TOTAL	79	0	79	0	54	54 (100%)

* NA – not applicable

Influenza-like Illness (ILI) Consultation Rate

The national ILI consultation rate declined to 25.4 ILI consultations per 1,000 patient visits in week 02 and is within the expected levels for this time of year (Figure 7). Compared to week 01, the ILI consultation rates declined across all age groups except for a slight increase in the ILI rate for those ≥ 65 years old. The highest consultation rates this week were observed in children under 5 (39.9/1,000 visits) and those 5 to 19 years old (34.9/1,000).

Figure 7. Influenza-like illness (ILI) consultation rates, Canada, by report week, 2011-2012 compared to 1996/97 through to 2010/11 seasons (with pandemic data suppressed)



Note: No data available for mean rate in previous years for weeks 19 to 39 (1996-1997 through 2002-2003 seasons). Delays in the reporting of data may cause data to change retrospectively.

Severe Illness Surveillance

Paediatric Influenza Hospitalizations and Deaths

In week 02, three new laboratory-confirmed influenza-associated paediatric (16 years of age and under) hospitalizations were reported through the Immunization Monitoring Program Active (IMPACT) network. Two hospitalizations were due to influenza A (in AB due to H3N2 & in QC due to H1N1) and 1 was due to influenza B (in ON).

To date this season, 34 cases have been reported (from BC, AB, SK, ON & QC); 23 (67.6%) were due to influenza A and 11 (32.4%) were due to influenza B. The proportion of cases by age group is as follows: 20.6% among infants <6 months of age; 17.6% among children 6-23 months of age; 41.2% were between 2-4 years; 8.8% were between 5-9 years; and 11.8% were between 10-16 years.

Adult Influenza Hospitalizations and Deaths

In week 02, 15 new laboratory-confirmed influenza-associated adult hospitalizations were reported: 5 in AB & 10 in ON. Two of the five cases in AB required ICU admission; both due to H3N2 virus infection.

To date this season, 38 influenza-associated adult hospitalizations have been reported from two provinces (AB & ON). The proportion of cases by age group is as follows: 32% were in those 20-44 years of age; 24% were in those 45-64 years of age and 45% were in those ≥ 65 years.

Note: Influenza-associated adult hospitalizations are not reported to PHAC by the following Provinces: BC, QC, & NB. Only hospitalizations that require intensive medical care are reported by SK. ICU admissions are not reported in ON.

International Influenza Updates

WHO: Influenza activity in the temperate regions of the northern hemisphere remains low overall though notable local increases in activity have been reported in some areas of Canada, Europe, northern Africa, China and the middle East. Countries in the tropical zone reported generally low or undetectable levels of influenza activity with the exception of southern China and Costa Rica. Influenza activity in the temperate countries of the southern hemisphere is at inter-seasonal levels. Reports from countries that do antigenic characterization indicate that nearly all influenza A viruses tested are antigenically related to those viruses included in the current trivalent influenza vaccine. While many of the influenza B viruses are of the Yamagata lineage, which is not included in the current vaccine, overall numbers of influenza B virus detections are quite low compared to influenza A (with the exception of China).

World Health Organization influenza update

United States: In week 01, the CDC reported that 3.4% (108/3,199) of influenza tests were positive. Since October 1, 2011, the CDC characterized 140 influenza viruses: 19 A/H1N1, 104 A/H3N2 and 17 B. All A/H1N1 viruses were characterized as A/California/7/2009-like. Of the 104 influenza A/H3N2 viruses that were characterized, 103 were A/Perth/16/2009-like and 1 showed reduced titers with antiserum produced against A/Perth/16/2009. Eight influenza B viruses were characterized as B/Brisbane/60/2008-like (B/Victoria lineage) and 9 B viruses belong to the B/Yamagata lineage. The proportion of outpatient visits for ILI was 1.4%, which is below the national baseline. Regional influenza activity was reported by two states (Colorado and New Hampshire), seven states reported localized influenza activity (California, Georgia, Kentucky, Massachusetts, Oregon, Texas, and Virginia) while the rest reported either sporadic or no activity.

Centers for Disease Control and Prevention seasonal influenza report

Europe: In week 02, influenza activity has increased slowly but steadily over the past weeks, although remaining low compared to the same period of the 2010-11 season, when detections were approximately 9 times higher and represented 50% of sentinel samples testing positive for influenza in the WHO European Region. The percentage of sentinel samples that tested positive for influenza in week 02 was 21% (of which 95% were for influenza A). Influenza A and B viruses are co-circulating in the Region, with the vast majority of detections being A(H3N2). Since week 40, 48 influenza viruses have been characterized antigenically: 2 were A/California/7/2009 (H1N1)-like; 39 were A/Perth/16/2009 (H3N2)-like; 2 were B/Florida/4/2006-like (B/Yamagata/16/88 lineage), 1 was B/Bangladesh/3333/2007-like (B/Yamagata/16/88 lineage) and 4 were B/Brisbane/60/2008-like (B/Victoria/2/87 lineage).

EuroFlu weekly electronic bulletin

Human Avian Influenza Updates

Four new cases of human A/H5N1 avian influenza infection were reported by the WHO: 1 from Cambodia, 2 from Egypt and 1 from Indonesia. Three of the four cases were in children < 5 years of age. One case from Egypt died. All four cases had exposure to sick poultry/birds or to backyard poultry.

WHO Avian influenza situation updates

FluWatch reports include data and information from the following sources: laboratory reports of positive influenza tests in Canada (National Microbiology Laboratory), sentinel physician reporting of influenza-like illness (ILI), provincial/territorial assessment of influenza activity based on various indicators, including laboratory surveillance, ILI reporting, and outbreaks, influenza-associated paediatric and adult hospitalizations, antiviral sales in Canada, and WHO and other international reports of influenza activity.

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

ILI definition for the 2011-2012 season

ILI in the general population: Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

Definitions of ILI/Influenza outbreaks for the 2011-2012 season

Schools: Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.

Hospitals and residential institutions: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Institutional outbreaks should be reported within 24 hours of identification. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.

Other settings: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. workplace, closed communities.

Influenza Activity Levels Definition for the 2011-2012 season

Influenza Regional Activity levels are defined as:

- 1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported
- 2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†
- 3 = Localized: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region†**
- 4 = Widespread: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **greater than or equal to 50% of the influenza surveillance region†**

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.

* More than just sporadic as determined by the provincial/territorial epidemiologist.

† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.

This report is available on the Public Health Agency website at the following address: <http://www.phac-aspc.gc.ca/fluwatch/index.html>. Ce rapport est disponible dans les deux langues officielles. Pour en recevoir un exemplaire dans l'autre langue chaque semaine, veuillez communiquer avec Estelle Arseneault, Division de l'immunisation et des infections respiratoires au (613) 998-8862.